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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended and new claims added to clarify Applicants invention.

Support for the amended and new claims is found in the original claims and the Specification.

No new matter has been added.

For example, support for the amendments and new claims are found in the original claims, the Figures, including Figure 3 and the Specification at paragraph 0035 and 0036:

"Once the cassette 74 has been raised to the level of the wafer slot 72, the cassette 74 can be rotationally positioned or indexed, as necessary to align the cassette 74 with the wafer slot 72. This facilitates the subsequent unloading of wafers from the cassette 74, through the wafer slot 72, and into a processing chamber (not shown) in the integrated cluster tool, for example, typically by operation of a wafer transfer robot (not shown), as is known by

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those skilled in the art.

Rotational positioning of the cassette 74 in the chamber interior 46 is carried out by actuation of the controller 76, wherein the housing magnet 70 in the housing 68 of the shaft rotation device 66 magnetically rotates the lift shaft 62, and the cassette stage 64 mounted thereon, in the selected clockwise or counterclockwise direction. When the cassette 74 is sufficiently aligned with the wafer slot 72, rotation of the lift shaft 62 is discontinued and transfer of the wafers from the cassette 74, through the wafer slot 72 and into a processing chamber (not shown) is begun."

Claim Rejections under 35 USC 102

1. Claims 1-2 and 10-11 stand rejected under 35 USC Section 102(b) as being anticipated by Fishkin et al. (US 5,697,750).

Fishkin et al. disclose a system for loading wafers into a vacuum environment where the wafer carrier cassette (42; Figure 1) is supported on an elevatable stage (26), elevated by a column member (24) threadably engaging a screw drive (32) where a

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lower portion of the elevatable stage (34; Figure 1 seals an upper portion of a transfer chamber (14) prior to lowering the stage and cassette into the transfer chamber (14) for transfer into an adjacent processing chamber (82) (see Abstract; (col 4, line 52 - col 5, line 7; col 5, lines 8-18; col 7, lines 33-50). **Flexible bellows enclose that portion of the column member extending within the transfer chamber** (col 5, lines 12-14). In operation, a sealing space (interface chamber) (68) between the lower portion of the elevatable stage (34) and the bottom of the cassette (carrier) (cover member) (46) and the transfer chamber (buffer) chamber (42) are evacuated to a pressure about equal to the pressure within the cassette (carrier), **prior to lowering** the cassette into the transfer chamber (col 6, lines 1-11; col 6, lines 45 - 61).

Thus, Fishkin et al. does not disclose several aspects of Applicants disclosed and claimed invention including:

"a chamber wall defining a chamber interior;

a bellows housing defined by said chamber wall;

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a shaft opening provided in said bellows housing;

a flexible bellows provided in said bellows housing and sealing said shaft opening from said chamber interior;

a lift shaft having a cassette stage extending through said shaft opening and said bellows into said chamber interior, said lift shaft **for positioning said cassette stage within said chamber interior at a wafer transfer position level;** and,

a shaft rotation device **sealably isolated from said chamber interior by said bellows** and operably engaging said lift shaft **for rotating without raising** said lift shaft and said cassette stage in said chamber interior to said wafer transfer position."

Thus, Fishkin et al. is insufficient to anticipate Applicants independent and dependent claims.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d

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1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim Rejections under 35 USC 103

2. Claims 3-4, 7-8, and 12-13 stand rejected under 35 USC Section 103(a) as being unpatentable over Fishkin et al., above, in view of Kagatsume et al. (US 4,908,095).

Applicants reiterate the comments made above with respect to Fishkin et al.

On the other hand, Kagatsume discloses **a moveable electrode in an etching chamber** for carrying out an etching process where a lower electrode is connected to a lifter which **moves the electrode up and down by means of three ball screws** and nuts screwed onto the ball screws and fixed to a support plate for locally adjusting the levelness of the electrode. A stainless steel bellows connected to the bottom of the electrode and the bottom of the chamber seals the lifter mechanism from the chamber

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interior (see Figure 5, col 5).

Even assuming *arguendo*, a proper motivation for combining the disparate structures of the electrode lifter of Kagatsume and the wafer carrier lifter of Fishkin et al., such combination does not further help Examiner in producing Applicants disclosed and claimed invention or establishing a *prima facie* case of obviousness.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

3. Claims 5, 14, 17, and 20 stand rejected under 35 USC Section 103(a) as being unpatentable over Fishkin et al., above, in view of Terada (US 5,324,540).

Applicants reiterate the comments made above with respect to Fishkin et al.

On the other hand, Terada discloses a system for supporting

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and rotating a wafer boat (item 14, Figure 1) within a process chamber (tube) where rotation is accomplished by a double magnet structure (20, Figure 1; Figure 2; 26 and 42) including a rotatable shaft (31) which passes through a bearing casing (46) where the bearing casing communicates with the process chamber (e.g., space 83; Figure 2) (see Abstract; col 1, line 64 - col 2, line 9); **The bearing casing which includes ceramic bearings is in fluid (gaseous) communication with the process chamber** (col 2, lines 9; col 5, lines 25-30) and is exhausted following processing prior to exhausting the process chamber (col 6, lines 1-15).

There appears to be no motivation to combine the teachings of the disparate load-lock chamber screw drive lift mechanism of Fishkin et al. with the rotatable wafer boat processing system of Terada, other than Applicants disclosure. Fishkin et al. does not disclose or suggest that rotation of a wafer carrier would be desirable or workable with the screw drive elevator system of Fishkin et al., while Terada does not disclose or suggest any particular type of elevator mechanism or disclose or suggest that the rotation mechanism Terada would be desirable or workable together with a screw drive elevator mechanism such as that

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taught by Fishkin et al.

Nevertheless, even assuming *arguendo*, a proper motivation for combination, such combination does not produce Applicants disclosed and claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

4. Claims 6, 15-16, and 18-19 stand rejected under 35 USC Section 103(a) as being unpatentable over Fishkin et al., above, in view of Terada, above, and further in view of Kagastsume et al., above.

Applicants reiterate the comments made above with respect to Fishkin et al., Terada, and Kagastsume et al.

Even assuming *arguendo*, a proper motivation for combination such combination does not produce Applicants disclosed and

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claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

5. Claim 9 stands rejected under 35 USC Section 103(a) as being unpatentable over Fishkin et al., above, in view of Kagastsume et al., above, and further in view of Terada, above.

Applicants reiterate the comments made above with respect to Fishkin et al., Terada, and Kagastsume et al.

Even assuming *arguendo*, a proper motivation for combination such combination does not produce Applicants disclosed and claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

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teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Conclusion

The cited references, either alone or in combination, fail to produce Applicants disclosed and claimed invention and therefore fail to make out a *prima facie* case of obviousness with respect to Applicants independent and dependent claims.

The claims have been amended and new claims added to clarify Applicants disclosed and claimed invention.

Based on the foregoing, Applicants respectfully submit that Applicants Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

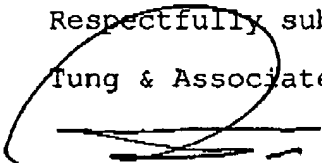
In the event that the present invention as claimed is not in a condition for allowance for any other reasons, the Examiner is

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respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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